Collaborative Metadata Management

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Agenda

- Motivation
- Metadata Management
- Metadata Management System (MDMS)
- Metadata Workflow
- Collaborative Metadata Management
- Conclusion
Motivation

• Joint work with the largest Swiss Health Insurance Company: Helsana
• Ca. 2 Million Customers
• New Data Warehouse
• Introducing SOA / SCA
• Well-established Processmanagement
• Problem: No central and standardized Metadata Interface (API / GUI)
Agenda

✓ Motivation
✓ Metadata Management
☐ Metadata Management System (MDMS)
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Kinds of Metadata

- Technical Metadata
  - Operational Metadata
  - Architecture Metadata
  - Process Metadata

- Business Metadata
Metadata Management II

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Metadata-Dimensions

Dimension 1: Data Hierarchy
- Model
- Subject Area
- Entity
- Attribute

Dimension 2: Data Flow
- Model
- Subject Area
- Entity
- Attribute

Dimension 3: Abstraction
- Model
- Subject Area
- Entity

Sources
- Enterprise Information Model
- Data Warehouse
- Reporting

Model
- Subject Area
- Entity
- Attribute
Metamodel – Data schema

```xml
<rdf:Description rdf:about=http://www.helsana.ch/mdm/models/BDWH>
  <rdf:li>
    <rdf:Description rdf:about=http://www.helsana.ch/mdm/entities/adr>
      <rdf:li>
        <rdf:Description rdf:about=http://www.helsana.ch/mdm/attributes/adr/sprache_c>
        </rdf:Description>
      </rdf:li>
      ...
    </rdf:Description>
  </rdf:li>
  ...
</rdf:Description>
```
Metamodel - ETL

L: Lookup
C: Case
B: Calculation
S: Standard
G: Generated
Metamodel – Information model

```xml
<rdf:Description rdf:about="http://www.helsana.ch/mdm/entities/InfoModel/Adresse">
  <mdmInfo:Definition>Die Adresse eines Partners...</mdmInfo:Definition>
  <rdfs:SubClassOf rdf:resource="http://www.helsana.ch/mdm/entities/InfoModel/Partner"/>
</rdf:Description>
<rdf:Description rdf:about="http://www.helsana.ch/mdm/entities/adr">
  <rdfs:type rdf:resource="http://www.helsana.ch/mdm/entities/InfoModel/Adresse"/>
</rdf:Description>
```
Metamodel - Overview
Architecture of the MDMS

Relational Database

Web Service Container

Java Web Container

MDMS User

Data Modelling Application

Local Model Manager

XMI files
Helsana Data Warehouse

Informationsmodell

SANAswiss

Transformation

Basis DWH

Code-Mapping

Transformation

Dimensionales DWH

Reports

Ad-hoc Abfragen

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Metadata Workflow

Typ 1
Metadata Sources

Typ 2
Metadata Integration

Typ 3
Metadata Authoring
(Meta-) Model-Operators I

Typ 1
Metadata Sources

Typ 2
Metadata Integration

Typ 3
Metadata Authoring

μ
(Meta-) Model-Operators II

Typ 1
Metadata Sources

Typ 2
Metadata Integration

Typ 3
Metadata Authoring

\[ \sigma \tau \]
(Meta-) Model-Operators III

- \( \mu \): Transforms a simple RDF-Graph into a versioned and authoring related RDF-Graph
- \( \sigma \): select - match - operator, returns an integrated RDF-Graph out of two input RDF-Graphs, where one of them has to be generated from the other by \( \mu \).
- \( \tau \): Reduces a versioned (temporal) RDF-Graph to a simple RDF-Graph
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Collaborative Approaches

- Social Sciences:
  - Communities of Practice (CoP)

- Computer Science:
  - Web 2.0: Social Software
  - Semantic Web: Semantic Social Software
Communities of Practice (CoP)

- intra-/inter-organizational community
- synchronous / ansynchronous
- distributed
- domain-based
- no timetable
- self-organizing
(Semantic) Social Software

- Forum -> thread-based
- Blog -> documentation
- Wiki -> versioned authoring
- Portal -> information/application integration

- And the winner is ...
Main Page

MediaWiki has been successfully installed.

Consult the User’s Guide for information on using the wiki software.

Getting started

- Configuration settings list
- MediaWiki FAQ
- MediaWiki release mailing list
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Conclusion

- The MDMS is now a stable and productive application with a growing number of users.

- Implementation of the metadata authoring part still needs to be done.

- In theory the wiki-approach fits the business requirements -> let’s see what the users will do with it...
Further Research

- Integration of Service-Metadata: RDF(S) und SOA (SAWSDL)
- Connection and Visualization of Business Processes (BPEL)
- Upgrade to a full Knowledge Management Portal (IT, Processes, Organization)
Wer sonst hat soviele Metadaten?